



Subcontract Case Study 06/2017

Company: N&R Needham Co Ltd

Azimuth

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Azimuth



[N&R Needham Co Ltd](#), was established in 1972 in a small industrial unit in Chesterfield. Having rapidly outgrown its original premise, to help satisfy the requirements of its increasing customer base, in 1977 the company moved into its current, purpose built manufacturing facility in Clay Cross, Derbyshire. Prompted by ever rising demands for the company's services two further factory extensions followed. Continued investments in the latest CNC machinery means that N&R Needham now has an [impressive capacity list](#) and is able to undertake a diverse range of work.

To keep pace with customer demands for the accurate machining of large complex components, N&R Needham recently installed a Mazak H1000 horizontal, twin pallet machining centre with a work envelope of 1640mm cubed. Given the size of the parts produced by the Mazak machine and the company's increased production volumes, a search was made for a large capacity Coordinate Measuring Machine (CMM) that was able to accommodate extremely large parts and that was capable of delivering the required levels of accuracy.

Having investigated the available large CMMs, an [Azimuth](#) machine with a measuring capacity of X1200 Y3000 Z1000, was purchased from Aberlink. N&R Needham Director, Joe Needham explained. "In addition to rising levels of output from our existing machines, the sheer size of the components and the increased production volumes from our recently installed Mazak twin pallet, horizontal machining centre, began to place a strain on our inspection capacity.

"Although each of the large CMM options that I considered were excellent machines, the Azimuth from Aberlink had all of the accuracy, speed and capacity attributes that we needed. In addition, [Aberlink's 3D software](#) proved very easy to use. Our new Aberlink CMM, located in a newly constructed temperature controlled inspection area, is able to handle the largest components that we manufacture. Also, its high-precision specification and impressive speed of operation means that it will be able to measure parts with the most demanding of tolerances and also accommodate any future anticipated increases in production."

Clive Brooks NR Needham Manager added. "As the main operator of our new Aberlink CMM I was pleased that the machine's software and controls were so intuitive and easy operate. Aberlink's first training session allowed me to quickly master all of the machine's basic functions. Once I had gained some experience on the CMM, a second, more advanced training session further improved my knowledge. Now, on the rare occasion that I have a problem, it helps that a phone call to Aberlink's help-desk results in a quick solution."

The imposing Azimuth machines represent the largest CMMs ever manufactured by Aberlink. The range encompasses machines with X-Y-Z capacities from 1200 x 1000 x 1000mm to 1200 x 3000 x 1000mm, with the capability of accepting components of up to 6000kg in weight.

The cost effective Azimuth range was designed to deliver outstanding levels of accuracy and repeatability when used in inspection departments or within shop floor environments. To aid the efficient measurement of large and heavy parts at the point of manufacture, the robust machines boast anti-vibration protection to help provide isolation from nearby machine tools. A [temperature compensation option](#) is also available.

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Azimuth CMMs are fitted with 0.0001mm linear encoders for superior accuracy and features a unique, self-contained drive system to ensure excellent performance over their entire measuring volumes. Given the size of the machines, a [touch screen CMM joystick](#) is supplied as standard, allowing convenient, remote operation. To ensure that customers are able to receive an Azimuth CMM to match their exact needs, a wide range of touch probes, a camera system for non-contact inspection and several software options are also available.

Azimuth CMMs are supplied with Aberlink's famous, easy to use 3D measuring software. Equally rewarding when used by the novice or an experienced CMM operator, Aberlink's intuitive 3D software, ensures greater user productivity and profitability. A welcome by-product of any Aberlink CMM inspection routine is that a simultaneous picture of the measured component is created on the computer screen. Dimensions between the measured features, mirroring those that appear on the component drawing, are then picked off as required. In essence this 'smart' software represents an intelligent measuring system that is able to automatically recognise and define the various features being measured.

Aberlink Business Development Manager Chris Davies concludes. "The Azimuth is not only Aberlink's largest CMM, but it is the culmination of over twenty years of in-depth experience and excellence in the design and manufacture of innovative metrology equipment that incorporates the very latest materials technology.

"When developing larger CMMs, it is not simply a case of scaling up the design of smaller models. The stiffness of a CMM's structure is critical, but weight must also be kept to a minimum. The Azimuth's revolutionary bridge incorporates aluminium honeycomb sheets developed for use in Formula One and the Aerospace Industry. The remarkable stiffness to weight ratio that this technique provides, gives the Azimuth an edge in both performance and speed. For a machine of this size, the Azimuth is not only fast, but it is extremely accurate."

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